

Homework: Class composition

Objective: Create a simplified model of a library system using class composition in C++ with arrays.

Description: Design two classes, Book and Library, where Library contains an array of Book objects.

Requirements:

1. Book Class:

- Attributes: title, author, ISBN
- Methods: displayBook() to print book details

2. Library Class:

- Attributes: libraryName, listOfBooks (an array of Book objects, max size 10)
- Methods:
 - addBook(Book book): Adds a new book to the listOfBooks, ensuring not to exceed array limit.
 - displayLibrary(): Prints the library's name and lists all books

Tasks:

- Implement the classes with the specified attributes and methods.
- In your main() function, create an instance of Library.
- Add five Book objects to the Library instance using provided sample data.
- Call the displayLibrary() method to show the content of the library.

Sample Data for Books:

Title: "C++ Programming", Author: "Bjarne Stroustrup", ISBN: "9780321563842"

Title: "Data Structures", Author: "Nicola Lacey", ISBN: "9780131986190"

Title: "Algorithm Design", Author: "Jon Kleinberg", ISBN: "9780321295354"

Title: "Operating Systems", Author: "Andrew S. Tanenbaum", ISBN: "9780133591620"

Title: "Computer Networks", Author: "Andrew S. Tanenbaum", ISBN: "9780132126953"

PS. To streamline the process, the sample data for the books can be directly coded within the main() function as demonstrated below:

```
int main() {  
    Library myLibrary("NCKU Library");  
    myLibrary.addBook(Book("C++ Programming", "Bjarne Stroustrup", "9780321563842"));  
    myLibrary.addBook(Book("Data Structures", "Nicola Lacey", "9780131986190"));  
    myLibrary.addBook(Book("Algorithm Design", "Jon Kleinberg", "9780321295354"));  
    myLibrary.addBook(Book("Operating Systems", "Andrew S. Tanenbaum", "9780133591620"));  
    myLibrary.addBook(Book("Computer Networks", "Andrew S. Tanenbaum", "9780132126953"));  
    myLibrary.displayLibrary();  
    return 0;  
}
```